

Amendment to claims:

Please cancel claims 1 – 18. Please add the following new claims 21-40.

Claims 1-20 [canceled]

21. [Newly presented] A method for operating a distributed table-driven virtual storage system comprising a controller, a storage network, one or more hosts operatively connected to said network, one or more agents having volatile memory, and at least one storage container, said method comprising:

- the controller creating a mapping table relating a storage location in the at least one storage container to a storage location in a virtual disk representing the at least one storage container;

- the controller establishing state variables in said table to indicate conditions favoring or inhibiting certain virtual disk operations;

- the controller storing said mapping table in non-volatile memory;

- the controller distributing the mapping table to said one or more agents through the storage network;

- said one or more agents storing said distributed mapping table in volatile memory;

- each of said one or more agents accessing information stored in the storage container using its distributed mapping table as its index to locate the information;

- each of said one or more agents operating independently from all others using its distributed mapping table for I/O access to said at least one storage container.

22. [Newly presented] The method of claim 21 wherein:

- said one or more agents are associated with said one or more hosts, each respective agent serving its respective host by conducting data I/O operations through the storage network.

23. [Newly presented] The method of claim 21 wherein:

the mapping table storage location is indicated by mapping virtual disk segments to a device identifier and block identifiers corresponding to said one or more storage containers.

24. [Newly presented] The method of claim 21 wherein:
one of said state variables is an invalid state that indicates whether any I/O operations may occur on a virtual disk segment and the corresponding location in a storage container.

25. [Newly presented] The method of claim 21 wherein:
one of said state variables is a no-write state indicating whether data contained in a virtual disk segment's corresponding storage container location may be changed.

26. [Newly presented] The method of claim 21 wherein:
one of said state variables is a zero state indicating that a virtual disk segment contains all zero bytes.

27. [Newly presented] The method of claim 21 wherein:
one of said state variables is an error state that indicates the existence of an error condition that would cause I/O access to fail.

28. [Newly presented] The method of claim 21 further comprising:
the controller maintaining centralized control of the mapping table, its contents, and its distribution to the said one of more agents in the network.

29. [Newly presented] The method of claim 21 further comprising:
each of said one or more agents interacting only with the controller for I/O operations serving said agent's respective host.

30. [Newly presented] The method of claim 21 further comprising:

said controller receiving an I/O fault message from one of said agents during an I/O operation to the mapping table, said controller determining the appropriate action and commanding the agent to take the proper action.

31. [Newly presented] The method of claim 29, wherein:
said fault message from the agent identifies the I/O operation, the virtual disk segment involved, and the table state inhibiting the I/O operation.

32. [Newly presented] A distributed table-driven virtual storage network comprising:
a storage network,
a storage network controller,
one or more hosts operatively connected to said network,
one or more agents associated with said one or more hosts, said one or more agents having associated volatile memory;
one or more storage containers in which information is stored,
each of said one or more agents having a mapping table to a virtual disk stored in its associated volatile memory, said mapping table having been distributed to said one or more agents by the network controller;
said one or more mapping tables comprising location information for said virtual disks and state variables to indicate conditions favoring or inhibiting certain virtual disk I/O operations.

33. [Newly presented] The storage network of claim 32 wherein:
said one or more agents are associated with said one or more hosts, each respective agent serving its respective host by conducting data I/O operations through the storage network.

34. [Newly presented] The storage network of claim 32 wherein:
the mapping table storage location is indicated by mapping virtual disk segments to a device identifier and block identifiers corresponding to said one or more storage containers.

35. [Newly presented] The storage network of claim 32 wherein:
one of said state variables is an invalid state that indicates whether any I/O operations may occur on a virtual disk segment and the corresponding location in a storage container.

36. [Newly presented] The storage network of claim 32 wherein:
one of said state variables is a no-write state indicating whether data contained in a virtual disk segment's corresponding storage container location may be changed.

37. [Newly presented] The storage network of claim 32 wherein:
one of said state variables is a zero state indicating that a virtual disk segment contains all zero bytes.

38. [Newly presented] The storage network of claim 32 wherein:
one of said state variables is an error state that indicates the existence of an error condition that would cause I/O access to fail.

39. [Newly presented] The storage network of claim 32 wherein:
the controller exercises centralized control of the mapping table, its contents, and its distribution to the said one of more agents in the network.

40. [Newly presented] The storage network of claim 32 further comprising:
each of said one or more agents interacts only with the controller for I/O operations.